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10/738,543	12/17/2003	Torsten Gottschalk-Gaudig	WAS 0611 PUS / Wa 10239-S	8271

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Advisory Action

The amendment filed on August 16, 2010 under 37 CFR 1.116 in reply to the final rejection has been considered but is not deemed to place the application in condition for allowance and will not be entered because: the proposed amendment do not remove 112, second paragraph issues, which were addressed in the Final Office Action mailed on May 17, 2010.

Response to Arguments

Applicant's arguments filed August 16, 2010 have been fully considered but they are not persuasive.

Rejection under 35 U.S.C. § 112, second paragraph

Applicants submit that the amendment should be entered to reduce issues on appeal, should appeal be necessary.

The Examiner disagrees. The amendment still does not clarify the meaning of the limitation "**at least one** of I) and II)…; and I and II being used alone".

Rejection of claims 15- 17, 19, and 30 - 36 under 35 U.S.C. § 103(a) over Endo et al. JP 04298538 A ("Endo") in view of Fitzgerald et al. U.S. Patent No. 5,623,028 ("Fitzgerald") and Ward et al. U.S. Patent No. 5,573,189 ("Ward")

(A) Applicants assert that Endo describes the use of wet process silica (colloidal silica) to increase the abrasion resistance and processing of at least uniaxially oriented polyester films. The silica is partly silylated, such that 30 - 70% of surface silanol groups are blocked. The silica is dispersed into the polyester during melt extrusion, or incorporated during the polymerization of the polyester raw ingredients, ethylene glycol and terphthalic acid. The colloidal silica of Endo consists only of spherical particles, as is well known. See, e.g.R.K. Iler, THE CHEMISTRY OF SILICA, John Wiley & Sons, New York, 1979, the colloidal silica "Bible."

The Examiner respectfully disagrees with this argument. First of all, in contrast to Applicants' assertion, Endo is not limited to wet silica particles since Endo discusses silica particles containing 1-30 groups/nm^2 with an average particle size of 0.1-5 microns (See Transl. P16) in which 30-70% of the total silanol groups are blocked by a silane coupling agent (See

Claim) without any reference to wet silica. Endo mentions only once that the silica particles used in his invention for blocking can be made by wet process (See P11). The main requirement of Endo for the silica particles is to contain 1-30 groups/nm^2. Endo teaches ***nowhere*** that suitable silica particles should be ***spherical*** and should be made by **wet** process. Therefore, from reading Endo as whole, it is clear that any silica particles would be suitable for his invention as long as they have 1-30 groups/nm^2 and an average particle size of 0.1-5 microns.

(B) Applicants assert that the particles of Endo are all discrete, spherical particles. Despite the disclosure of Endo that the surface silanol content may be from 1 to 30 SiOH/nm2, this is clearly erroneous, as it is well known that colloidal silica has an SiOH content of from 4 - 5 SiOH/nm2. See, e.g. A.P. Le Grand, THE SURFACTANT PROPERTIES OF SILICAS, John Wiley & Sons, Chichester, 1998. At 70% blockage by silylating agents, colloidal silica will have a minimum residual silanol content of 2.8 SiOH/nm2.

The Examiner respectfully disagrees with this argument. First of all, in contrast to Applicants' assertion, Endo teaches ***nowhere*** that silica particles are all discrete, spherical particles. Second, according to Applicants' own words "it is well known that colloidal silica has an SiOH content of from 4 - 5 SiOH/nm2", which leads to conclusion that Endo is NOT directed solely to wet silica but to any silica having silanol content within the range of 1-30 SiOH/nm^2.

(C) Applicants assert that Fitzgerald is not directed to the use of colloidal silica, but of fumed silica. Fumed silica is totally different chemical substances with respect to surface chemistry and morphology, as is well known. Fumed, or pyrogenic silica, is formed at very high temperatures, 1500 - 1800°C by the flame hydrolysis of chlorosilanes in a hydrogen/oxygen flame. The initial primary particles of nm size which are formed, irreversibly fuse to irregular sinter-aggregates which are non-spherical, and thus totally different from the spherical particles used by Endo. A photomicrograph of fumed silica is shown below. The sinter aggregates are permanent - they cannot be broken apart, since they are fused together. The fumed silica also has a low density of silanol groups, typically 2 - 2.5 SiOH/nm2, due to condensation of adjacent silanol groups to silicate or siloxy groups.

The Examiner respectfully disagrees with this argument. Since Endo teaches that silica particles containing 1-30 groups/nm^2 with an average particle size of 0.1-5 microns are suitable for his invention, raw *fumed* silica particles of Fitzgerald having a BET surface area of 200 m^2/g (i.e. particle size of 0.20-0.35 microns) and a surface silanol density of **e.g.** 4.5 OH groups/nm are clearly suitable. Note that Fitzgerald is not limited to fumed silica having 4.5 OH groups/nm since Fitzgerald teaches: "The present invention provides for a means of controlling physical properties of heat curable rubbers or other thermosets by controlling the density of surface

silanol groups on **fumed** or pyrogenic silica used as a reinforcing filler in the heat curable rubber' (See column 3, lines 41-45). Note also that according Applicants' own admission, "The fumed silica has a low density of silanol groups, *typically* **2 - 2.5** SiOH/nm2".

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used typical commercially available raw *fumed silica* having particle size of 0.20-0.35 microns containing **up** to 4.5 OH groups/nm^2 as raw silica in Endo et al for treating with silane coupling agent with the expectation of producing silica having excellent dispersibility in a polyester film composition since Endo et al does not limit its teaching to *particular* raw silica, and commercially available raw *fumed silica* has particle size, a surface area and a surface silanol density within ranges required in raw silica of Endo et al.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ELENA Tsoy LIGHTFOOT whose telephone number is (571)272-1429. The examiner can normally be reached on Monday-Friday, 9:00AM - 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Primary Examiner
Art Unit 1715

August 19, 2010

/Elena Tsoy Lightfoot/